

FCC NFC Test Report

Applicant: vivo Mobile Communication Co., Ltd
Product Name: Mobile Phone
Brand Name: vivo
Model Name: V2521
FCC ID: 2AUCY-V2521
Standard: 47 CFR Part 15 Subpart C
Test Date: 09/03/2025 - 09/08/2025
Issued Date: 09/11/2025

Approved By:	Reviewed By:	Tested By:
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LAB Manager	Technical Director	Test Engineer

※ ※ Notice ※ ※

1. The laboratory has passed the accreditation by The American Association for Laboratory Accreditation (A2LA).
The accreditation number is 7172.01.
2. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
3. The test report is invalid if there is any evidence of erasure and/or falsification.
4. The test report is only valid for the test samples.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. If any question about this report, please contact the laboratory.
7. We evaluated the uncertainty of the relevant test items. The Ulab (lab Uncertainty) is less than Ucispr/ETSI (CISPR/ETSI Uncertainty). Test uncertainty is not added to the test results.
8. The Product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.
9. N/A: Not required/not applicable.

※ ※ Modified History ※ ※

Rev.	Descriptiond	Issued Date	Author	Remark
Rev.1.0	Initial Test Report Release	09/11/2025	HuangYu Cun	

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1 General information

1.1 Test standard

Test Standard	Test Standard Description
47 CFR Part 15 Subpart C	Unlicensed National Information Infrastructure Devices
ANSI C63.10	American National Standard for Testing Unlicensed Wireless Devices

1.2 Test Environment

Temperature:	TN	23.2°C during room temperature tests
Relative humidity content:	55.7%	
Barometric pressure:	not relevant for this kind of testing	
Power supply:	VN	3.91V DC by Battery

1.3 Test site information

Test Site 1:	vivo Mobile Communication Co., Ltd. Testing Center
Test Site Location:	3 / F, Building M1, Zone B, vivo Industrial Park, No.1 vivo Road, Chang'an, Dongguan, Guangdong, China
Test Site 2:	vivo Mobile Communication Co., Ltd. Testing Center
Test Site Location:	3 / F, Building R5, Zone B, vivo Industrial Park, No.1 vivo Road, Chang'an, Dongguan, Guangdong, China

1.4 Manufacturer information

Company Name:	vivo Mobile Communication Co., Ltd.
Address:	No.1, vivo Road, Chang'an, Dongguan, Guangdong, China

1.5 Test Software

No.	Site	Manufacture	Name	Version
1	CE	R&S	ELEKTRA	3.20.1
2	RE	ETS	TILE!	7.5.5.12

1.6 Test Summary

No	Test Items	Description of Test	Verdict (NOTE)	Testing location
1	15.207	AC Power Line Conducted Emissions	Pass	Location 1
2	2.1049	Bandwidth Measurement	Pass	Location 2
4	15.225(e)	Frequency Stability	Pass	Location 2
5	15.225(a)(b)(c)	In-Band Radiated Emissions	Pass	Location 2
6	15.225(d)&15.209	Out-Band Radiated Emissions	Pass	Location 2
7	15.203	Antenna Requirements	Pass	Location 2

2 Equipment Specification (EUT)

2.1 General Description

The product is a 5G smart phone which including GSM/WCDMA/LTE/NR, Bluetooth, Wi-Fi, NFC and GNSS wireless functions.

Note: Only the NFC test data in this report.

2.2 EUT Identity

EUT Description	
Product Name:	Mobile Phone
Model Name:	V2521
FCC ID:	2AUCY-V2521
IMEI Code:	860105089998633
Software Version:	PD2511KF_EX_A_15.0.11.10.W30
Hardware Version:	MP_0.1

2.3 Accessories information

Accessories information			
Name	Model	Manufacturer	Description
Battery	BB21	Sunwoda Electronic Co., Ltd.	Nominal Voltage: 3.91V Limited Charging Voltage: 4.50 V Rated Capacity: 6355mAh/24.85Wh; Typical Capacity: 6500mAh/25.42Wh;
Adapter	V4440L0A0-US AHJX	Dongguan Aohai Technology Co.,Ltd	Input: 100-240V~50/60Hz, 1.1A Output: DC5V/3A-9V/2A-11V/4A Max
USB Cable	BK-C-49-B	vivo Mobile Communication Co., Ltd.	N/A
Note 1: N/A = Not Applicable			

2.4 Technical Description

Characteristics	Description	
Operating Frequency	13.56MHz	
Modulation Type	ASK	
Antenna Type	Loop Antenna	
Power Supply	Power Supply Type:	☐ External DC mains, ☒ Battery, ☐ AC/DC Adapter, ☐ Powered over Ethernet (PoE). ☐ USB ☐ Other_____
	Input Rated Voltage	3.91V
	Operating Voltage Range	3.7V~4.4V
Operating temperature Range	-10°C~+55°C	

Modification of EUT

No modifications are made to the EUT during all test items.

3 Test Configuration of Equipment Under Test

3.1 Descriptions of Test Mode

Test Items	
Mode 1:type A	TX mode
Mode 2:type B	TX mode
Mode 3:type F	TX mode
Mode 4:type V	TX mode

Note: All modes of operation were investigated and the worst case configuration results are reported.

3.2 Cables Used during Test

Cable	Quantity	Length	Type of Cable
USB	1	<3m	Shielded

3.3 Associated Equipment Used during Test

Name	Model	Manufacturer	S/N	Calibrated Deadline	Cal interval (year)
Notebook	LENOVO	21EY- A0V4CD	GM0W70L6	NCR	NCR

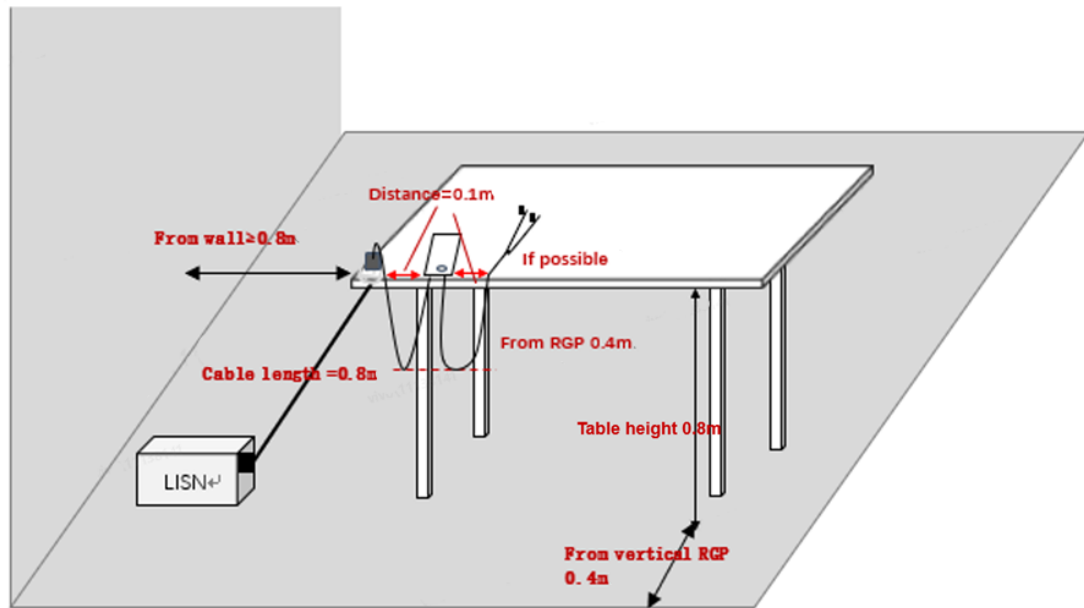
Note 1: NCR = No-Calibration Requirement.

4 Test Setups

Note: See Appendix A for Radiated Emission and AC Conducted Emission practical Test Setup Photos.

4.1 Test setup for AC Conducted Emission

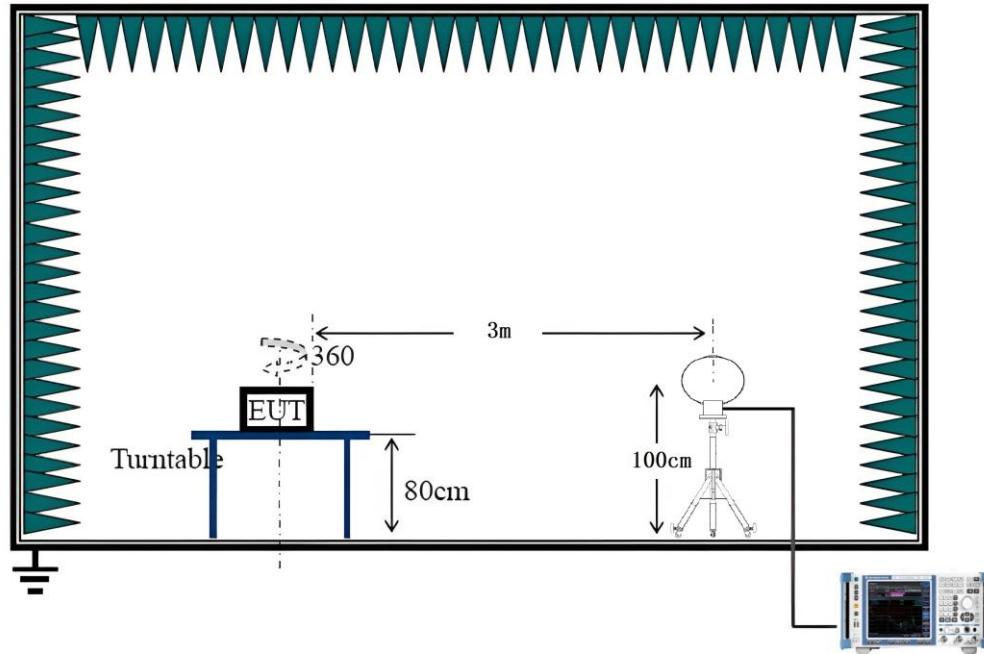
Test Setup 1 of AC conducted emission for power port



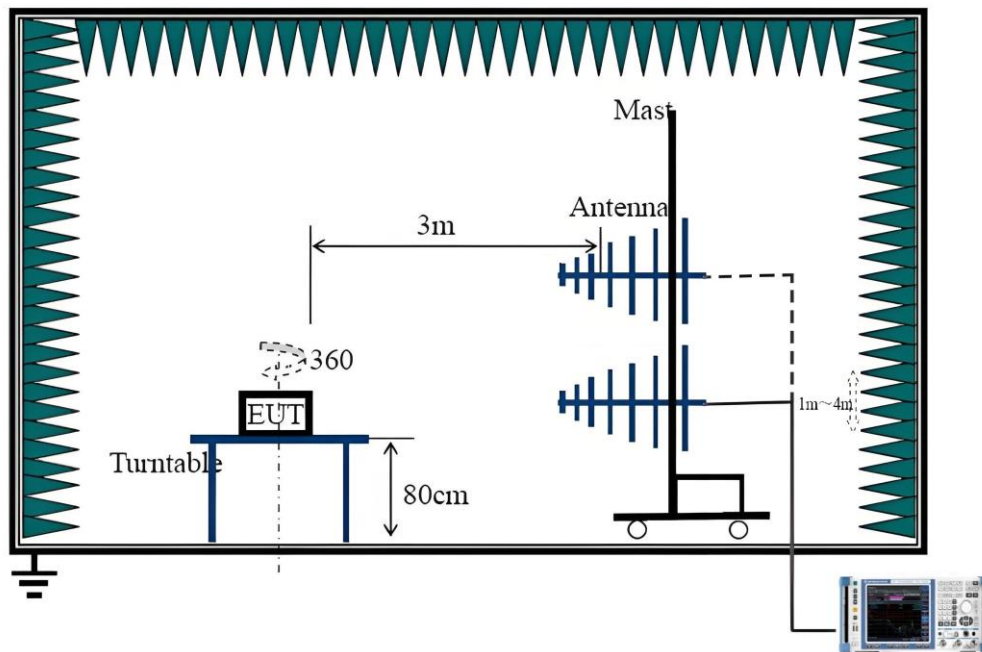
4.2 Test setup for Radiated measurements

The radiated emissions from the EUT are performed in a semi-anechoic chamber.

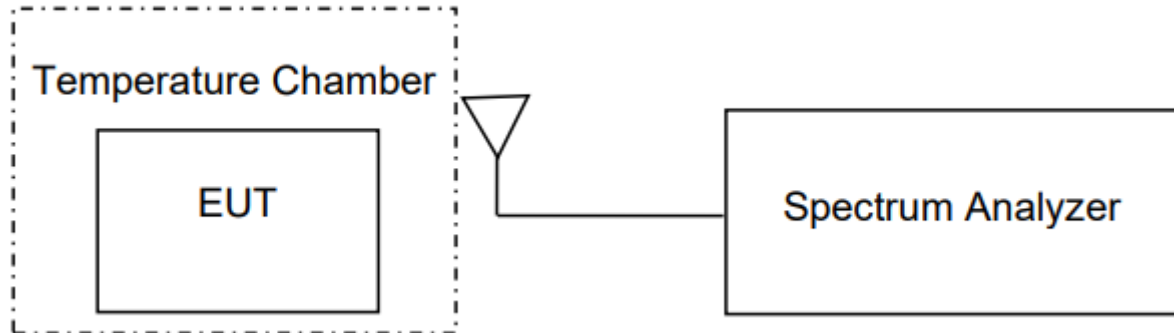
Test Setup 2 : 9 kHz - 30 MHz: active loop antenna



Test Setup 3 : 30 MHz - 1GHz: hybrid antenna



4.3 Test setup for Frequency Stability Measurement



5 Test Conditions and Results

Test Item	Test Conditions		Test Data	Results
AC Power Line Conducted Emissions	Test Environment	TN/VN	Clause 6.1	Pass
	Test Setup	Test Setup 1		
Bandwidth Measurement	Test Environment	TN/VN	Clause 6.2	Pass
	Test Setup	Test Setup 2		
Frequency Stability Measurement	Test Environment	TN/VN	Clause 6.3	Pass
	Test Setup	Test Setup 4		
In-Band Radiated Emissions	Test Environment	TN/VN	Clause 6.4	Pass
	Test Setup	Test Setup 2		
Out-Band Radiated Emissions	Test Environment	TN/VN	Clause 6.5	Pass
	Test Setup	Test Setup 3		
Antenna Requirements	Test Environment	/	Clause 6.6	Pass
	Test Setup	/		

6 Test Data

6.1 AC Power Line Conducted Emissions

Limit:

For equipment that is designed to be connected to the public utility (AC) power line, the radio within the band 150 kHz to 30 MHz shall not exceed the limits in the following table. frequency voltage that is conducted back onto the AC power line on any frequency or frequencies

Test Limit of AC Power Port (Class B)		
Frequency range	150kHz ~ 30MHz	
Frequency	Voltage limits	
	QP(dB μ V)	AV(dB μ V)
0.15MHz~0.5MHz	66-56	56-46
0.5MHz-5MHz	56	46
5MHz~30MHz	60	50

Test Procedure

Refer to ANSI C63.10:2013

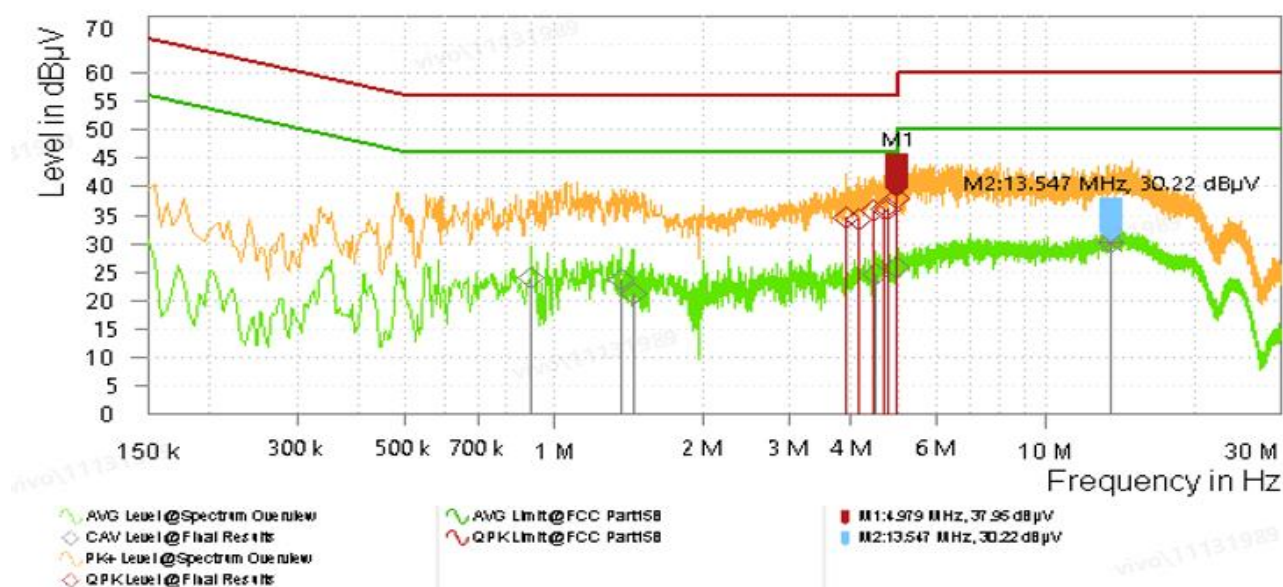
The mains cable of the EUT being measured shall be connected to LISN, The LISN shall be placed 0.8m away from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m away from the LISN.

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80cm above the horizontal ground plane, the EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Level= Measure + Cableloss+ Correction.

The detailed test data: Mode 1:type A



MEASUREMENT RESULT: QP Detector

Frequency [MHz]	Measure [dBμV]	Cableloss [dB]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	Correction [dB]	Line
3.917	24.40	0.09	34.42	56.00	21.58	9.93	N
4.142	24.25	0.09	34.29	56.00	21.71	9.95	N
4.457	25.86	0.09	35.92	56.00	20.08	9.97	N
4.659	25.91	0.11	36.02	56.00	19.98	10.00	N
4.767	25.89	0.13	36.06	56.00	19.94	10.04	N
4.979	27.63	0.20	37.95	56.00	18.05	10.12	N

MEASUREMENT RESULT: AV Detector

Frequency [MHz]	Measure [dBμV]	Cableloss [dB]	AVG Level [dBμV]	AVG Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line
0.897	14.16	0.12	24.05	46.00	21.95	9.77	N
1.365	13.83	0.09	23.68	46.00	22.32	9.76	N
1.446	11.40	0.08	21.23	46.00	24.77	9.75	L1
4.515	14.54	0.07	24.57	46.00	21.43	9.96	N
4.965	15.56	0.20	25.87	46.00	20.13	10.11	N
13.547	18.58	0.31	30.22	50.00	19.78	11.33	N

Note: AC power-line conducted emissions measurements are to be separately carried out on the live line and on the neutral line and only the worst results are presented in the report.

6.2 Bandwidth Measurement

Limit:

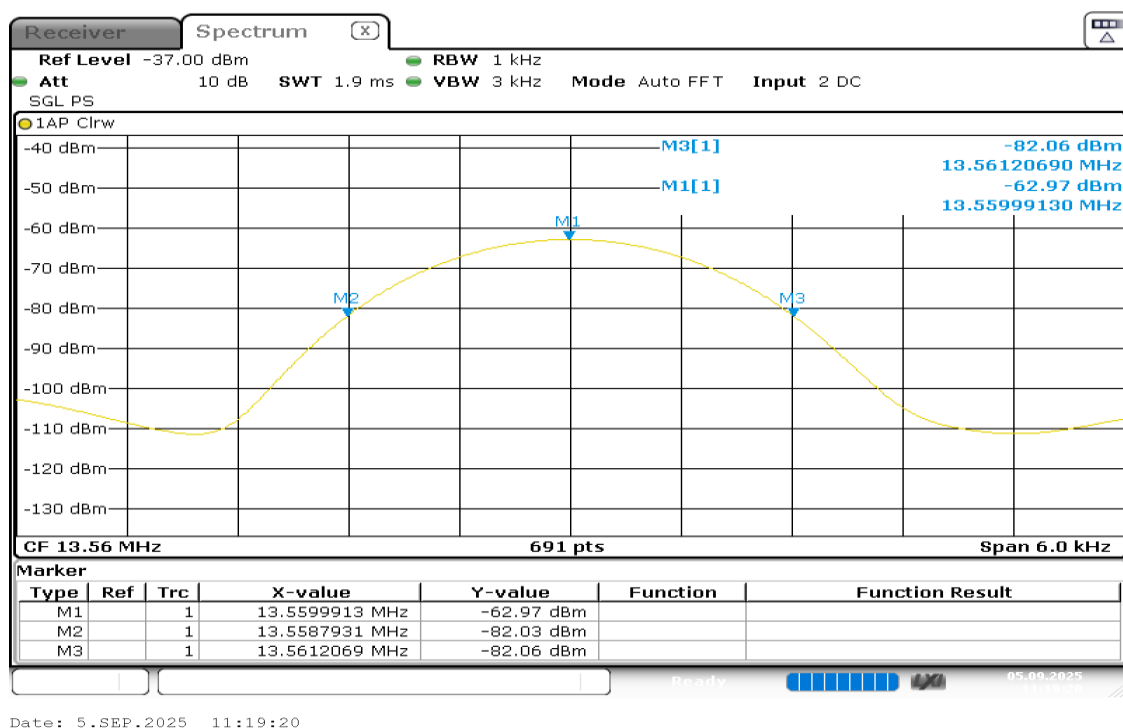
Intentional radiators must be designed to ensure that the 20dB and 99% emission bandwidth in the specific band 13.553-13.567MHz.

Test Procedure

1. The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
2. The resolution bandwidth of 1 kHz and the video bandwidth of 3 kHz were used.
3. Measured the spectrum width with power higher than 20dB below carrier.
4. Measured the 99% OBW.

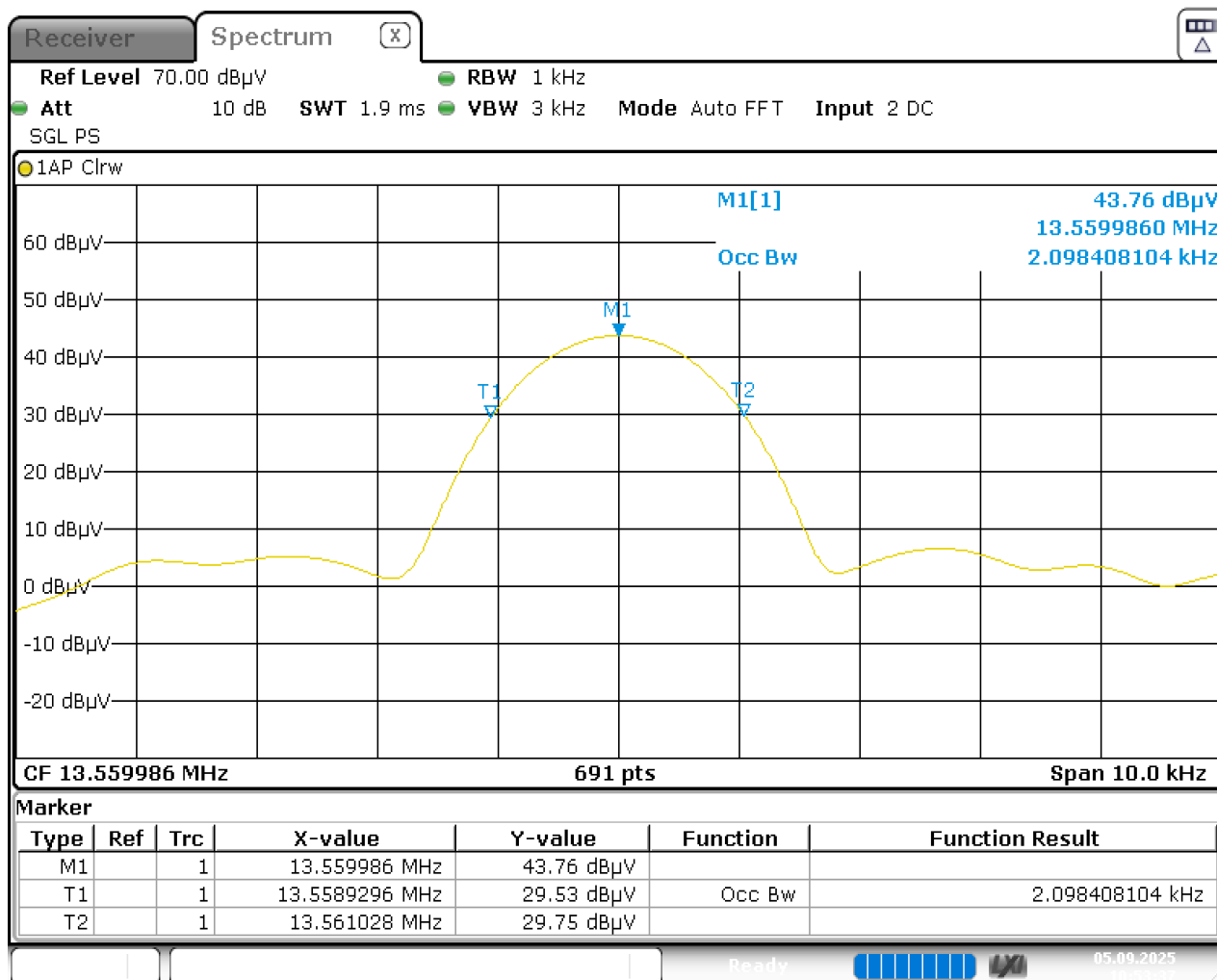
The detailed test data: The worst case measurement configuration

Frequency	Value (MHz)	Limits (MHz)	Verdict
FL@ Modulation bandwidth	13.5587931	>13.553	PASS
FH@ Modulation bandwidth	13.5612069	<13.567	PASS



The detailed test data: The worst case measurement configuration

OBW (kHz)	FL@OBW (MHz)	FH@OBW (MHz)	Limits (MHz)	Verdict
2.098408104	13.5589296	13.561028	FL:13.55300MHz FH:13.56700MHz	PASS



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6.3 Frequency Stability Measurement

Limit:

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% (100ppm) of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Test Procedure

1. The spectrum analyzer connected via a receive antenna placed near the EUT, the EUT placed inside an environmental chamber.
2. EUT have transmitted signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire emissions bandwidth.
4. Set RBW = 1 kHz, VBW = 3 kHz with peak detector and maxhold settings.
5. The fc is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10 \text{ ppm}$ and the limit is less than $\pm 100 \text{ ppm}$.
6. Extreme temperature rule is -20°C-50°C.

The detailed test data:

Declared Frequency (MHz)		13.56MHz		10 minutes	
Temperature(°C)	Voltage(Vdc)	Measurement Frequency(MHz)	Frequency Tolerance (%)	Limit (%)	Result
50	3.91	13.5589293	0.00790%	±0.01	Pass
40	3.91	13.5589296	0.00789%	±0.01	Pass
30	3.91	13.5589363	0.00784%	±0.01	Pass
20	3.91	13.5589307	0.00789%	±0.01	Pass
10	3.91	13.5589303	0.00789%	±0.01	Pass
0	3.91	13.5589201	0.00796%	±0.01	Pass
-10	3.91	13.5589266	0.00792%	±0.01	Pass
-20	3.91	13.5589209	0.00796%	±0.01	Pass
20	3.7	13.5587931	0.00890%	±0.01	Pass
20	4.3	13.5589006	0.00811%	±0.01	Pass

6.4 In-Band Radiated Emissions

Limit:

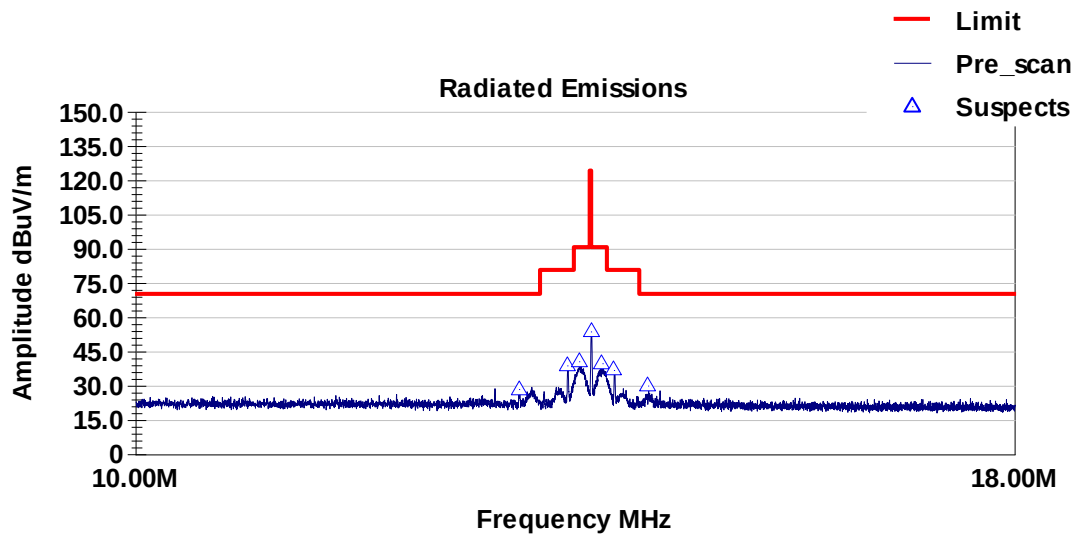
Rules and specifications	FCC CFR 47 Part 15 section 15.225			
Frequency(MHz)	Field Strength(μ V/m) at 30m	Field Strength(dB μ V/m) at 30m	Field Strength(μ V/m) at 30m	Field Strength(dB μ V/m) at 30m
1.705-13.110	30	29.5	49.58	69.5
13.110-13.410	106	40.5	59.58	80.5
13.410-13.553	334	50.5	69.58	90.5
13.553-13.567	15848	84.0	103.08	124.0
13.567-13.710	334	50.5	69.58	90.5
13.710-14.010	106	40.5	59.58	80.5
14.010-30	30	29.5	49.58	69.5

Test Procedure

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the turntable
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
4. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
5. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the Z axis positioning which it is worse case
6. Repeat above procedures until all frequencies measured was complete.
7. RBW set to 9kHz. VBW $\geq$ 3 x RBW.
8. Level = Measure + Cable loss + Ant Factor

The detailed test data:

In-Band Radiated Spurious Emission Measurements:



Test_Result

Frequency (MHz)	Measure (dBuV)	Cableloss (dB)	Ant Factor (dB/m)	PK (dBuA/m)	Limit (dBuA/m)	Margin (dB)	AZ (Deg)
12.923	17.85	0.37	10.35	28.57	70.00	41.43	208
13.347	28.18	0.38	10.33	38.89	80.50	41.61	0
13.453	30.03	0.38	10.33	40.74	90.50	49.76	360
13.560	43.08	0.38	10.32	53.78	124.00	70.22	187
13.665	29.15	0.38	10.32	39.84	90.50	50.66	0
13.770	26.21	0.38	10.31	36.90	80.50	43.60	155
14.089	19.36	0.38	10.28	30.02	70.00	39.98	351

6.5 Out-Band Radiated Emissions

Limit

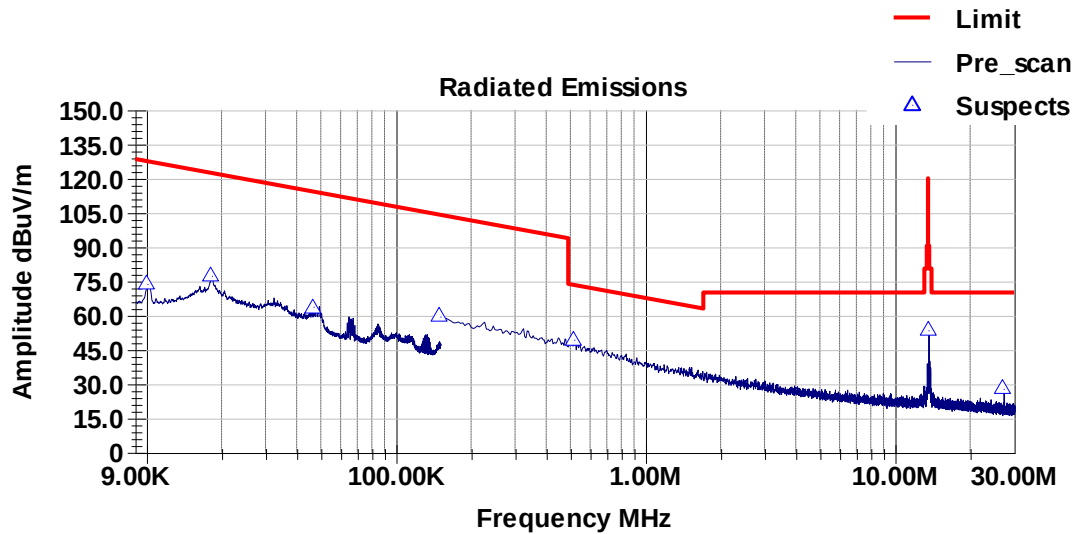
Test Limits(Class B)		
Frequency (MHz)	Distance (m)	Field Strength(microvolts/meter)
0.009-0.490	300	2400/F(KHz)
0.490-1.705	30	24000/F(KHz)
1.705-30	30	30
30 - 88	3	100
88 - 216	3	150
216 - 960	3	200
Above 960	3	500

Test Procedure

1. The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: C63.4. The test distance was 3m for 30MHz ~ 1GHz.
2. The test site full-anechoic chamber has met the requirement of VSWR tolerance 6dB according to the standards: C63.4. The test distance was 3m for Above 1GHz.
3. The set-up and test methods were according to ANSI C63.10
4. A preliminary scan and a final scan of the emissions were made from 30 MHz to 1GHz by using test script of software; the emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV/PK detector , RBW = 9kHz for emissions below 30MHz and 100kHz for emissions between 30MHz and 1GHz, VBW $\geq 3 \times$ RBW.
5. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the Z axis positioning which it is worse case.
6. Repeat above procedures until all frequencies measured was complete.
7. Level = Measure + Cable loss + Ant factor

The detailed test data:

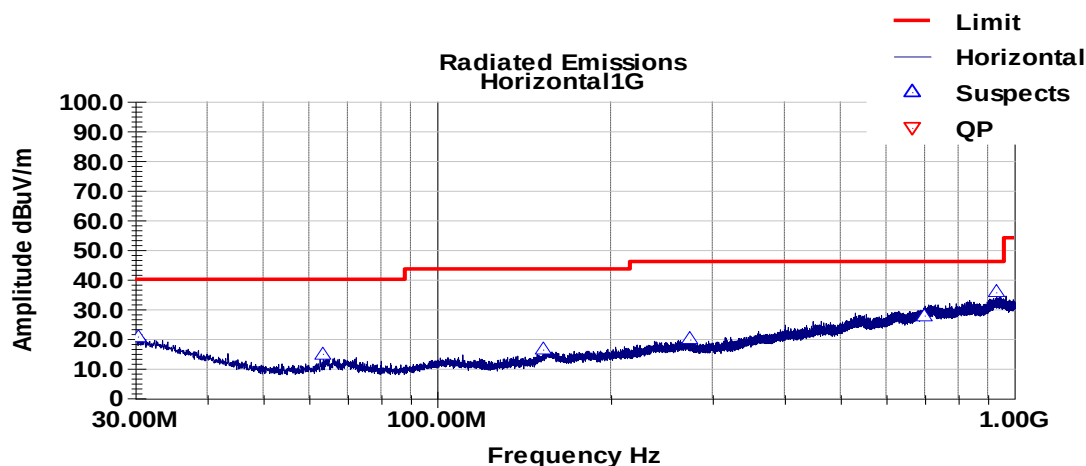
Out-of-Band Radiated Spurious-Below 30MHz



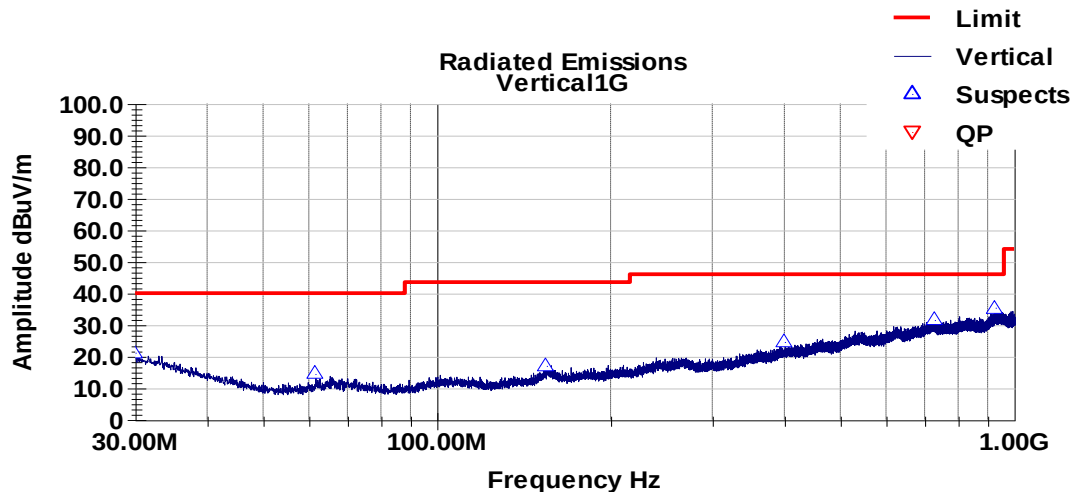
Test_Result

Frequency	Measure (dBuV)	Cableloss (dB)	Ant Factor (dB/m)	PK (dBuA/m)	Limit (dBuA/m)	Margin (dB)	AZ (Deg)
10.040 KHz	55.98	0.20	17.79	73.97	128.42	54.45	318
18.218 KHz	61.54	0.28	15.70	77.52	127.84	50.31	19
46.541 KHz	51.45	0.31	12.20	63.96	125.79	61.83	103
150.000 KHz	47.84	0.33	11.50	59.68	118.33	58.65	131
515.660 KHz	37.50	0.34	11.70	49.54	73.57	24.03	106
13.560 MHz	42.98	0.38	10.32	53.68	120.00	66.32	198
27.123 MHz	19.81	0.38	7.83	28.03	70.00	41.97	51

Out-of-Band Radiated Spurious-30Mhz-1GHz



Frequency (MHz)	Measure (dBuV/m)	Cableloss (dB)	Ant Factor (dB/m)	PK (dBuV/m)	Limit (dBuV/m)	Margin (dB)	AZ (Deg)	HGT (cm)
30.291	26.28	-21.73	16.28	20.83	40.00	19.17	22	200
63.368	29.81	-21.71	6.90	14.99	40.00	25.01	22	200
152.463	27.32	-21.29	10.38	16.42	43.50	27.08	180	200
274.197	27.65	-20.84	12.98	19.79	46.00	26.21	191	100
698.528	24.65	-19.30	22.54	27.89	46.00	18.11	68	100
929.481	28.84	-18.22	25.10	35.71	46.00	10.29	123	100



Frequency (MHz)	Measure (dBuV/m)	Cableloss (dB)	Ant Factor (dB/m)	PK (dBuV/m)	Limit (dBuV/m)	Margin (dB)	AZ (Deg)	HGT (cm)
30.000	26.61	-21.73	16.40	21.28	40.00	18.72	182	100
61.477	29.37	-21.72	6.90	14.55	40.00	25.45	122	200
154.742	27.40	-21.27	10.97	17.11	43.50	26.39	49	200
400.000	27.99	-20.43	17.10	24.66	46.00	21.34	201	100
727.628	27.69	-19.17	23.09	31.61	46.00	14.39	53	100
927.638	28.67	-18.24	25.10	35.53	46.00	10.47	330	200

6.6 Antenna Requirements

15.203 requirement:

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

Antenna Anti-Replacement Construction: The antenna of the EUT are permanently attached.

7 Main Test Instruments

Device	Manufacturer	Type	Serial number	Date of last calibration	Valid period(year)
EMI Test receiver	R&S	ESR3	102718	03/22/2025	One year
Artificial Mains Network	R&S	ENV216	101510	03/21/2025	One year
EMI Test Receiver	R&S	ESR26	101757	03/24/2025	One year
LOOP Antennas	ETS	6502	00239900	09/01/2024	Two years
Temperature and humidity meter	HUATO	A2000-EX	H2000GA793	08/14/2025	One year
Hybrid Antenna	ETS	3142E	00238728	11/28/2024	Two years
Preamplifier (10 MHz-6 GHz)	SCHWARZBECK	BBV 9743B	00328	03/22/2025	One year

8 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

System Measurement Uncertainty		
Items		Extended Uncertainty
RE(9KHz-30MHz)	Field strength (dB μ V/m)	U=2.98dB; k=2
RE(30MHz-1GHz)	Field strength (dB μ V/m)	U=4.78dB; k=2
CE(150KHz-30MHz)	Disturbance Voltage (dB μ V)	U=1.61dB; k=2

-----END-----